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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,677	05/21/2004	Carles Borrego Bel	8153ES	3676
23688	7590	11/21/2006	EXAMINER	
Bruce E. Harang PO BOX 872735 VANCOUVER, WA 98687-2735			AMRANY, ADI	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/709,677	BORREGO BEL ET AL.	
	Examiner	Art Unit	
	Adi Amrany	2836	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Priority***

1. Applicants have not responded to or acknowledged the objection due to the improper claim for foreign priority, as presented in the Office Action of August 10, 2006.

Until this issue is resolved, the current application will be treated as though the date of invention is the U.S. filing date (May 21, 2004).

### ***Claim Objections***

2. Claim 1 is objected to because "units" (line 7) should read, "power distribution units," and "control microcontrollers" (line 15) should state, "microcontrollers." The recited limitations must remain consistent throughout the claims. Claim 1 is further objected to because it contains multiple grammatical inconsistencies (missing commas, multiple tenses, etc.) and is not written in a clear and easily discernable language.
3. Claim 11 is objected to for the reasons stated above regarding claim 1.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinas (US 6,879,057) in view of Turner (US 6,646,845) and in further view of Tani (US 2004/0124703).

With respect to claim 1, Pinas discloses electric power distribution architecture at two substantially different voltage levels (figure 1; column 5, lines 24-36), comprising:

at least a first battery (figure 1, item B12; column 6, lines 1-8) at a first voltage level;

a second battery (figure 1, item B36; column 5, lines 46-48) at a second, substantially higher voltage level, and intended as a differentiated electric power supply for respective network sectors (figure 1, items R14, R42);

said network sectors having power distribution units (figure 1, item 2; figure 2, item 8; column 5, lines 24-36; column 6, lines 38-52) directing power to loads (figure 1, items 6-7; figure 2, items 35-38);

said at least first battery and sectors that is supplies being fed in turn from the second battery through a converter (figure 1, item 4; figure 2, item 1; column 5, lines 53-62; column 6, lines 8-13);

said second battery being connected to a voltage generator (figure 1, item A; column 5, lines 46-48).

Pinas does not expressly disclose the electric power distribution architecture comprises an automatic disconnection device, a microcontroller to monitor the state of the first battery, or microcontrollers contained within the power distribution units.

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Turner discloses a system for protection against short-circuits in electric power distribution architectures (figure 1, item 10; column 4, lines 1-12; column 6, lines 18-22), comprising:

a first battery (figure 1, item 12; column 6, lines 43-46);

an automatic disconnection device (figure 1, item 14; column 6, lines 23-31 and 46-55; column 7, lines 1-4);

said first battery has an associated module SSM microcontroller (figure 1, item 26; column 7, lines 14-22 and 27-29; column 8, lines 5-10) monitoring the voltage and current at the posts of said battery and sensing an operating state of said converter (column 4, lines 35-46; column 7, lines 30-46);

The Turner battery discharges and supplies power to the loads when the ignition is off and recharges when the vehicle ignition is on (column 8, lines 11-14). Through sensing the state of charge of the battery, the Tuner controller, when combined with the Pinas architecture, senses the *operating state* of the DC/DC converter. The operating state of the converter controls the charge/discharge function of the first battery, which is sensed by the Turner controller.

Pinas and Tuner are analogous because they are from the same field of endeavor, namely automotive power distribution systems. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the dual voltage system disclosed in Pinas with the short-circuit protection system disclosed in Turner. The motivation for doing so would have been to protect the electrical system in the event of a short-circuit, for example, during a car crash.

Tani discloses an electric power distribution architecture (figures 1-2; paragraphs 64-67), comprising:

- a first battery (figure 1, item 103) with an associated module SSM microcontroller (figures 1-2, item 105; paragraphs 69-70, 73 and 75);

- the power distribution units (figure 1, items 110a-110e) are controlled by a corresponding microcontroller (paragraph 77, lines 1-6);

- said module SMM microcontroller of battery B1 is connected through a port and a communications network (paragraph 70, lines 11-16) with each one of control microcontrollers of the power distribution units of the loads;

- in order to, facing a short-circuit situation sensed by said module SMM microcontroller, according to the detection of a predetermined state of the converter, followed by predetermined, sensed voltage and current values, inform each one of the microcontrollers of said power distribution units in order to activate said automatic disconnection device (paragraph 73, lines 4-12).

Tani discloses that the battery SMM microcontroller (105) senses the state of charge of the battery, and transmits the information to the power distribution unit microcontrollers. In the event of a short circuit, or other malfunction, the battery SMM microcontroller would transmit a message indicative of the event.

With respect to claims 2 and 3, Tani discloses the use of a communications network (figure 1, item 106). It would be obvious to one skilled in the art that a communications network amongst the plurality of microcontrollers would be either a dedicated network or a shared bus, as those are the common types of networks.

With respect to claims 4-5, Tani discloses that the controller is included in *an assembly* to measure the state of health and state of charge of the battery (figures 1-2, item 105) and to control and manage the loads fed by said battery (paragraph 67, lines 7-10; paragraph 70, lines 11-16).

With respect to claim 6, Pinas discloses power distribution units (figure 1, item 2; figure 2, item 8) that supply power to the loads from the low and high voltage batteries.

With respect to claims 7-8, Tani discloses the loads are *governed* by power switches (paragraph 67). Further, it would have been obvious to one skilled in the art to configure the power switches as FETs (column 6, lines 46-55), in order to allow the Tani PDUs (items 110) to control the switches through electric signals. The Tani PDU is not disclosed to contain any moving parts to activate a mechanical switch.

With respect to claim 9, Tani discloses sensing the voltage or impedance at the output of said power switches prior to said controlled load (paragraph 67). It would be obvious to one skilled in the art that the Tani sensors can be placed at various locations along the power transmission line between the battery and the load.

With respect to claim 10, it would be obvious to include another controller for monitoring and controlling a disconnection device for the second battery, since the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (CCPQ 1977).

With respect to claims 11-20, Pinas and Tuner disclose the apparatus necessary to complete the recited methods, as discussed above in the rejections of claims 1-10, respectively.



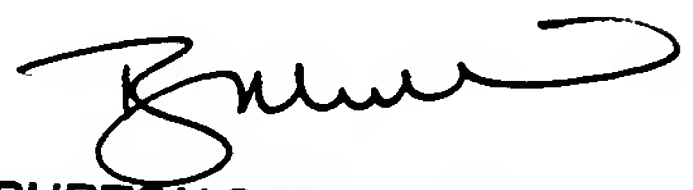
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

  
BURTON S. MULLINS  
PRIMARY EXAMINER